CLAIMS

1. (Canceled)

2. (Currently amended) ~~The method of claim 1 wherein the step of detecting further comprises:~~ In a wireless receiver wherein a radio frequency signal is received, downconverted, and processed into in-phase (I) and quadrature (Q) signal paths, a method of automatic gain control (AGC) comprising:

(a) at a specified stage in an I/Q baseband strip containing multiple automatic gain control (AGC) stages, each of said AGC stages having locally generated control signals associated therewith:

i. detecting respective I and Q output signals received from respective I and Q variable gain amplifiers (VGAs) associated with said specified AGC stage;

~~(a)~~ ii. passing said respective I and Q output signals through respective high pass filters (HPFs);

~~(b)~~ iii. rectifying said respective I and Q filtered output signals;

~~(c)~~ iv. adding said respective I and Q filtered output signals in an operational amplifier; ~~and~~

~~(d)~~ v. passing said added I and Q filtered output signal through a low pass filter (LPF);

vi. digitizing said detected I and Q signals; and

vii. adjusting with said associated control signal said respective I and Q VGAs for differences between said detected I and Q output signals and a reference signal; and

(b) repeating (a) through each AGC stage.

3. (Currently amended) The method of claim ~~1~~ 2 wherein the step of digitizing further comprises:

(a) receiving in an analog~~ue~~ to digital converter (ADC) said added low pass filtered I and Q signal;

(b) comparing said received signals to a reference signal; and

(c) generating digital up/down and count/hold control signals.

4. (Original) The method of claim 3 wherein said step of comparing further comprises using a multi-level comparator and a logic circuit to generate said digital up/down and count/hold control signals.

5. (Original) The method of claim 4 wherein the step of adjusting further comprises:

(a) receiving in an up/down counter said up/down and count/hold control signals; and

(b) setting the gains of respective I and Q variable gain amplifiers (VGAs).

6. (Original) The method of claim 5 wherein the step of setting further comprises:

(a) if said I and Q filtered output signals fall outside a predefined boundary, modifying the gains of said respective I and Q VGAs until a desired I/Q output signal is achieved;

(b) else, maintaining said respective I and Q VGA settings.

7. (Original) The method of claim 6 wherein the step of modifying comprises adjusting said respective I and Q VGAs at a fast rate if said detected I/Q output signal is beyond a first predefined range or at a slow rate if said detected I/Q output signal is beyond a second predefined range.

8. (Original) The method of claim 6 wherein the step of modifying comprises adjusting said respective I and Q VGAs at a large magnitude if said detected I/Q output signal is beyond a first predefined range or at a small magnitude if said detected I/Q output signal is beyond a second predefined range.

9. (Canceled)

10. (Currently amended) ~~The automatic gain control circuit of claim 9~~ In a wireless receiver where a radio frequency signal is received, downconverted, and processed into in-phase (I) and quadrature (Q) signal paths, an automatic gain control (AGC) circuit comprising multiple AGC stages where each of the AGC stages includes:

(a) respective I and Q variable gain amplifiers (VGAs);

(b) a detector to detect respective I and Q output signals received from the respective I and Q VGAs;

(c) an analog to digital converter (ADC) to convert the detected I and Q output signals; and

(d) a digital engine to digitally adjust the respective I and Q VGAs for differences between the detected I and Q output signals and a reference signal;

where~~in said~~ the detector comprises:

i. respective I and Q high pass filters (HPFs) ~~for removing~~ to remove direct current (DC) offsets from ~~said~~ the respective I and Q output signals;

ii. a rectifier communicating with ~~said~~ the respective I and Q HPFs ~~for changing said~~ to change the respective filtered I and Q output signals from alternating current (AC) to direct current (DC);

iii. an operational amplifier (Op-amp) communicating with ~~said~~ the rectifier ~~for adding said~~ to add the filtered I and Q output signals; and

iv. a low pass filter (LPF) communicating with ~~said~~ the Op-amp ~~for filtering said~~ to filter the added I and Q output signals.

11. (Original) The automatic gain control circuit of claim 10 wherein said ADC comprises a multi-level comparator and a logic circuit.

12. (Original) The automatic gain control circuit of claim 11 wherein the number of levels in said multi-level comparator is at least four.

13. (Original) The automatic gain control circuit of claim 12 wherein said digital engine comprises an up/down counter for setting gains associated with said respective I and Q variable gain amplifiers (VGAs).

14.-19. (Canceled)

20. (New) A wireless receiver including a plurality of serially connected automatic gain control stages, each stage comprising:

I and Q variable gain amplifiers to generate I and Q signals, respectively;

a detector to generate a detect signal by detecting a difference between the I and Q signals;

an ADC to convert the detect signal to a digital detect signal; and

an engine to generate a control signal responsive to the digital detect signal and a reference signal;

where the I and Q VGAs operate responsive to the control signal.

21. (New) The wireless receiver of claim 20 comprising:

I and Q buffers to buffer the I and Q signals, respectively.

22. (New) The wireless receiver of claim 20 where the detector includes:

I and Q high pass filters to generate I and Q filtered signals by removing direct current offsets from the I and Q output signals.

23. (New) The wireless receiver of claim 22 where the detector includes:

a rectifier communicating with the I and Q high pass filters to change the I and Q filtered signals from alternating current to direct current.

24. (New) The wireless receiver of claim 23 where the detector includes:

an operational amplifier to generate added I and Q signals by adding the I and Q filtered signals.

25. (New) The wireless receiver of claim 24 where the detector includes:

a low pass filter to filter the added I and Q signals.

25. (New) A method comprising;

generating a detect signal by detecting a difference between I and Q signals at respective outputs of I and Q variable gain amplifiers of a plurality of serially connected automatic gain control stages;

converting the detect signal to a digital detect signal;

generating a control signal to control the I and Q variable gain amplifiers responsive to the digital detect signal; and

adjusting the I and Q variable gain amplifiers responsive to the control signal.

26. (New) The method of claim 25 comprising:

generating I and Q filtered signals by removing direct current offsets from the I and Q output signals.

27. (New) The method of claim 26 comprising:

rectifying the I and Q filtered signals from alternating current to direct current.

28. (New) The method of claim 27 comprising:

adding the rectified I and Q signals.

29. (New) The method of claim 28 comprising:

low pass filtering the added I and Q signals.